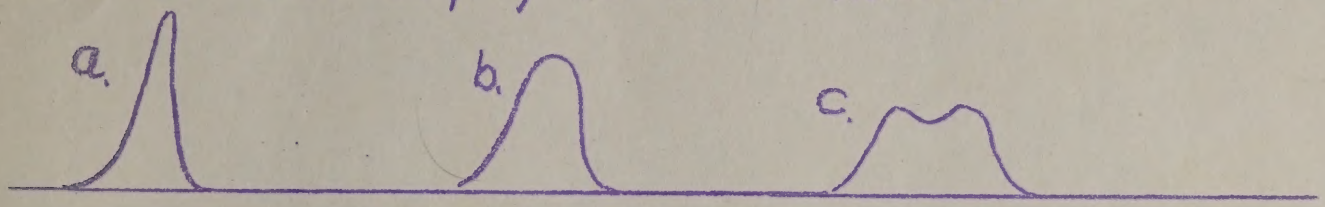
Johnson

Electronics Technician — Name Q. Local

Examination – Resonance & Power Factor — Date MARCH-20-57

① Identify each of the following curves with respect to each other the "Q" and coupling for an R.F. Transformer



a. HIGH Q – OVER COUPLING

b. MEDIUM Q – OPTIMUM – COUPLING

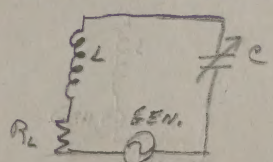
c. LOW Q – LOOSE COUPLING

② Give the "Q" for the following conditions

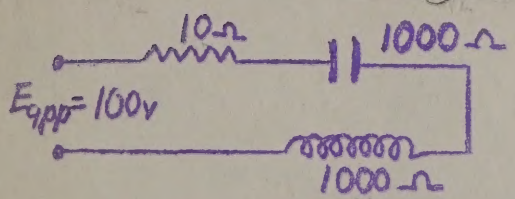
a. $X_L = 1000$; $R = 10$ $Q = \frac{X_L}{R} = \frac{1000}{10} = 100$

b. $E_c = 500$ $E_{applied} = 10$ $Q = \frac{E_c}{E} = \frac{500}{10} = 50$

③ Draw the equivalent circuit for the secondary of a tuned RF Transformer



④



$E_C = 1000 \cdot 10 = 10{,}000$ V. (10^4)

$E_L = 1000 \cdot 10 = 10{,}000$ V (10^4)

$Q = \frac{X_L}{R} = \frac{1000}{10} = 100$

$I_T = \frac{100}{10} = 10$ A

⑤ An equivalent series circuit = $X_L = 100\Omega$; $R = 25$; $I_t = 4$ amps

$PF = \frac{R}{Z} = \cos\theta = 76° = .2419$ (OR 24.2%)

True Power = $I^2R = 4^2 \times 25 = 400$